In the Claims:

Please cancel the amended claims 1-13 of the International application (PCT) and substitute the following new claims.

14. A device for producing a monocrystal by growing the monocrystal from a melt of raw materials with a heating appliance for generating a temperature gradient within the melt of raw material, wherein the heating appliance comprises a rotationally symmetrical furnace with a rotation axis (M) and with an essentially level floor heater and an essentially level cover heater that can be controlled to different temperatures, the device further comprising:

a first insulating device that is structured and arranged in such a way that a heat flow in a radial direction perpendicular to the rotation axis (M) of the furnace can be controlled at a preset rate; and

a second insulating device that is structured and arranged to provide an insulating effect having a gradient from the cover heater to the floor heater.

15. A device in accord with Claim 14, wherein the furnace is cylindrical and further comprising a controller to control a temperature of the floor heater to be lower than a temperature of the cover heater.

16. A device in accord with Claim 14, further comprising an insulator device having a tapered cone body with a coaxial cylindrical hollow space that is open at the top and bottom, the insulator device being positioned in the furnace so that the tapered end is towards the floor heater.

17. A device in accord with Claim 14, further comprising a jacket heater for the furnace.

18. A device in accord with Claim 14, further comprising a heat transmission part having a rotationally symmetrical profiled or unprofiled shape.

19. A device in accord with Claim 14, wherein the heaters comprise a heating surface having a ratio to a surface of a monocrystal to be produced to provide a temperature that is essentially homogeneous over a radial cross-section of the monocrystal and a temperature gradient between the floor heater and the cover heater that is essentially constant.

20. A device in accord with Claim 19, wherein the surface of each heater is at least 1.5 times the cross-sectional area of the monocrystal.

21. A device in accord with Claim 15, wherein the controller can lower the temperature of the floor heater continuously with reference to the cover heater.

22. A device in accord with Claim 14, the device further comprising a clearance between the floor heater and the cover heater, the clearance being greater than the length of a monocrystal to be produced.

23. A device in accord with Claim 14, wherein said first insulator device comprises graphite.

24. A device in accord with Claim 14, further comprising a crucible for receiving the melt of raw material, the crucible being located between the floor heater and the cover heater.

25. A device in accord with Claim 14, wherein the furnace is cylindrical and further comprising:

a controller to control a temperature of the floor heater to be lower than a temperature of the cover heater;

an insulator device having a tapered cone body with a coaxial cylindrical hollow space that is open at the top and bottom, the insulator device being positioned in the furnace so that the tapered end is towards the floor heater;

a jacket heater for the furnace;

a crucible for receiving the melt of raw material, the crucible being located between the floor heater and the cover heater; and

a clearance between the floor heater and the cover heater, the clearance being greater than the length of a monocrystal to be produced.

26. A device in accord with Claim 25, further comprising a heat transmission part having a rotationally symmetrical profiled or unprofiled shape.

27. A device in accord with Claim 25, wherein the floor and cover heaters comprise a heating surface having a ratio to a surface of a monocrystal to be produced to provide a temperature that is essentially homogeneous over a radial cross-section of the monocrystal and a temperature gradient between the floor heater and the cover heater that is essentially constant.

28. A device in accord with Claim 27, wherein the surface of each of the floor and cover heaters is at least 1.5 times the cross-sectional area of the monocrystal.

29. A device in accord with Claim 25, wherein the controller can lower the temperature of the floor heater continuously with reference to the cover heater.

30. A device in accord with Claim 25, wherein said first insulator device comprises graphite.

31. A method for producing a monocrystal of a III-V composite semiconductor material, said method comprising growing the monocrystal in a device according to any one of Claims 14 to 30.

32. A method for producing a monocrystal of gallium arsenide, said method comprising growing the monocrystal in a device according to any one of Claims 14 to 30.